CONSERVATION PLAN

12 February 2001

ILLINOIS CHORUS FROG (*Pseudacris streckeri illinoensis*)

POTENTIAL IMPACTS
from OPERATION and MAINTENANCE ACTIVITIES
on the 9-FOOT NAVIGATION CHANNEL,
ILLINOIS WATERWAY, BEARDSTOWN, ILLINOIS
by the U.S. ARMY CORPS of ENGINEERS, ROCK ISLAND DISTRICT

BACKGROUND

The District (U.S. Army Corps of Engineers, Rock Island District) undertakes normal O&M (operation and maintenance) dredging activities for the Illinois Waterway at the chronic Beardstown Dredge Cut, La Grange Pool, in Cass and Schuyler Counties between approximate RM (River Miles) 86.2 and 88.8. An inland, behind levee historic placement site (Site 1, attached map) is currently about one-third full, necessitating the identification of additional storage capacity for channel maintenance dredged material. Our long-term planning efforts have identified a new proposed placement site downstream of Site 1 (Site 5, attachment map).

During the District's normal coordination effort with appropriate natural resource agencies concerning NEPA (National Environmental Policy Act) requirements for new dredged material placement sites, it was discovered that the proposed dredging project had the potential to impact an Illinois State threatened species of frog, namely the Illinois chorus frog (*Pseudacris streckeri illinoensis*).

Through subsequent telephone conversations, meetings, and letters with the Illinois Department of Natural Resources, Office of Resource Conservation; the Illinois Natural History Survey; and the Illinois Department of Natural Resources, Office of Realty and Environmental Planning, it has been concluded that continued utilization of historic placement Site 1 and future utilization of proposed Site 5 could result in the incidental taking of an undetermined number of Illinois chorus frogs. Consequently, if the two sites are to be used for dredged material placement in the future, the District is required to write a CP (Conservation Plan) describing how mitigative efforts would compensate for the loss (mortality). In this CP the District is undertaking to determine if chorus frogs are currently utilizing Sites 1 and 5. Future monitoring efforts may determine if dredged material is more suitable for the frogs than the substrate before dredged material placement, and if mitigation measures such as constructing small breeding ponds is effective in recruitment. If this CP is approved by the Illinois Department of Natural Resources, Endangered and Threatened Species Program, the District would receive Incidental Take Authorization which would allow placing more dredged material at historic Site 1, and at new Site 5 after an approved EA (Environmental Assessment) is written for Site 5.

PLACEMENT SITE LOCATIONS

Historic dredged material placement Site 1 and proposed new placement Site 5 are located in Cass County, left descending bank, Illinois Waterway between RM 87 and 88 and are identified on the attached map. They are located between South Beardstown Road and the levee. Using the Beardstown, Illinois 7.5' USGS Quadrangle from 1981, the approximate center of Site 1 is located at UTM, Zone 15, 717759E 4431720N. The approximate center of Site 5 is located at 717430E 4431440N.

BIOLOGICAL DESCRIPTION

The Illinois chorus frog is a State threatened species that is known to occur in nine counties in Illinois, in sandy habitats along the central part of the Illinois Waterway, and only along its eastern side. It breeds in early spring, in shallow, fishless ponds/pools that hold water through June when the transforming froglets leave their natal ponds. The spent adults and froglets then migrate to suitable habitat to spend the remainder of the year. They are highly fossorial and migrate to preferred areas of sandy soil with sparse vegetation or absence of vegetation. They require substrates with poor to very poor sod development to accommodate their fossorial habits. The post-breeding activity is subterranean, with frogs seldom or never coming to the surface during non-breeding seasons. This frog species has two main requirements: sand substrates for burrowing during non-breeding seasons, and ephemeral, fishless bodies of water that persist long enough to allow for breeding and transformation of at least some of the froglets. Because these habitats have been converted to agriculture or developed for other human activities, Illinois chorus frogs are now uncommon.

DISTRICT'S TAKING ACTIVITIES

Two activities are deemed potential "incidental takers" of Illinois chorus frogs resulting from future placement of dredged material at Sites 1 and 5 from the Beardstown Dredge Cut. First, if dredged material were to be placed on Sites 1and 5 in the future, during the non-breeding part of the frog's life cycle, some Illinois chorus frogs utilizing the two sites directly prior to placement could be buried and killed. Secondly, burrowed frogs utilizing the dredged material after placement for the non-breeding part of their life cycle could be exposed or uncovered when the dredged material is removed for beneficial use. This has the potential to cause some mortality (incidental taking) to those frogs that didn't escape the excavation/loading/removal process.

QUANTIFICATION OF TAKE

The number of frogs currently utilizing Sites 1 and/or 5 is unknown. Monitoring efforts should help to estimate usage both for breeding and non-breeding portions of their life cycle. Historic placement Site 1 covers a total of approximately 5.26 hectares (13 acres). The portion of Site 1 currently covered by dredged material is approximately 1.94 hectares (4.8 acres). Proposed placement Site 5 covers approximately 3.17 hectares (7.83 acres).

COMPENSATION MEASURES

Funding for all construction measures and monitoring efforts for this CP are budgeted for this year (2001) with budgeting anticipated for the out years up to 4 years (through 2005). The District stands committed to this effort.

There are no plans to restrict deposition of dredged material in placement Sites 1 or 5, or minimize the number of chorus frogs potentially impacted from any future removal of dredged material for beneficial use purposes. As a result, some mortality to chorus frogs that may inhabit the placement sites may occur as sand is removed for beneficial use purposes. Such incidental mortality, however slight, is regrettable and would be an unavoidable consequence of prolonging the life (site capacity) of the sites to accept Illinois Waterway navigation channel dredged material. At some point in the multi-agency discussion/negotiation for this project, it was suggested that constructing barriers to the dredged material placement sites during the time the frogs were breeding would prevent them from returning to the dredged sand. It was theorized that this would reduce mortality from future mechanical removal of dredged material for beneficial use when the frogs were in the non-breeding portion of their life cycle. After considerable thought, the District concluded that the likelihood is greater that the dredged sand may attract more frogs than would be taken during beneficial use removal, thereby increasing their population, even allowing minor loss during periodic beneficial use removal of the sand. Additionally, providing more suitable substrate (loose sand) from O&M activities compared to the substrate before placement (Medway loam), may result in attracting more Illinois chorus frogs to the sites than were attracted before dredged material placement. Very little species specific management measures of the project would be undertaken. The current size of Sites 1 and 5 is a function of how much land is needed to accommodate sufficient capacity of dredged material from the Beardstown Dredge Cut for the long-term (20 years) to maintain commercial navigation.

Three small, shallow breeding ponds are to be constructed (two near Site 1 and one near Site 5) after land acquisition. After construction, these would be monitored to assure they maintain water through the June timeframe. The final area and depth will be determined in the future and will be more clearly defined in the upcoming EA. These pond parameters will be arrived at through coordination with the Illinois Department of Natural Resources, Office of Resource Conservation. It is estimated they will be less than one-half acre, and less than one-half meter deep. The two future ponds near Site 1 would be approximately equal in size and depth to the current sump area constructed outside the containment berm for Site 1. This sump area is at approximate elevation of 431 mean sea level (MSL) and serves to collect water that seeps through the containment berm during the hydraulic dredging operation. During the dredging operation this water is then pumped back over the berm to avoid flooding adjacent fields. This sump area held shallow, fishless water the entire year of 2000, indicating suitability as frog breeding habitat. One breeding pond would be constructed near (west of) Site 5. This pond would be monitored to assure adequate depth to maintain ponded water through June. If all else fails, ponds can be lined with impervious plastic-type material to assure adequate ponding depths for frogs to breed, hatch, and transform the froglets to adult stage. This pond lining technique has been successfully utilized in Sand Ridge State Forest in Mason County to maintain Illinois chorus frog breeding habitat. This management measure should help to deal with the unanticipated circumstance concerning breeding pond water "permanency." Additionally, the frogs that may utilize Sites 1 and 5 for non-breeding, the sump area near Site 1, and the ponds to be constructed in the future would not have to cross any road (decreasing vehicular induced mortality during the breeding season).

Federal ownership of the two placement sites should contribute to continued use by Illinois chorus frogs. Both Sites 1 and 5 were/are currently privately owned crop fields. Agricultural practices can damage chorus frogs from pesticide and herbicide use, and cause mortality from machinery employed in farming practices. Federal ownership in fee title would ensure that land-use of both sites be long-term dredged material placement, thereby potentially decreasing mortality from farming activities.

As stated earlier, these frogs need sandy habitat during the non-breeding season because of their subterranean lifestyle. The dredged material from the Beardstown Dredge Cut has been analyzed through sieve analysis and classified as medium to fine sand. The resident substrates of Sites 1 and 5 are Medway loam, frequently flooded; and Medway loam, rarely flooded, respectively. The dredged material, medium to fine sand is more suitable for their burrowing lifestyle than the substrate that exists now. Conceivably, the ability to burrow more deeply in medium to fine sand would reduce injury or mortality to frogs from frost damage during the winter if the initial burrows in the resident material were too shallow.

The unconsolidated nature of the dredged sand constitutes a poor growth medium for plants. Vegetation growing on the portion of Site 1 impacted by dredged material is clear evidence that sod development is, and will continue to be, non-existent on dredged material because of the very sparse vegetation there compared to the adjacent area which is unimpacted by dredged material. This should serve to enhance the suitability of the dredged material placement sites compared to nearby areas. One study consulted for this CP stated that no burrow was found within 2 inches (5 centimeters) of plants (*Herpetological Review 26(1), 1995,* submitted by Tucker, Camerer, and Hatcher). Another document concluded that areas with sparse vegetation remain warmer in winter than areas of heavy vegetation (Tucker 1997). This reduces the likelihood of damage from frost in the burrows on dredged material placement Sites 1 and 5 (unconsolidated sand vs. Medway loam).

There are plans in place now for monitoring Illinois chorus frog usage both at Sites 1 and 5, and at future breeding ponds, before and after construction. These efforts involve using drift fences and pit traps, with measuring, toe-clipping, and release of all captured frogs with the intent of monitoring change in population size and determining recruitment rate of the species at the dredged material placement sites and utilization at the constructed breeding pond sites. Data to be collected include population size, survivorship estimates, and estimates of recruitment rate needed to judge the efficacy of the CP.

ALTERNATIVES CONSIDERED

No Action. If one interprets No Action as No Project, this would preclude Federal involvement in the project. Consequently, no dredging would occur. If this area is not dredged, it is certain that shoaling would occur and eventually result in the closure of the channel to commercial navigation. Such an emergency situation would result in an unacceptable hazard to life or navigation and a sufficient economic hardship if corrective action were not taken within a time period less than the normal time needed under standard procedures. The No Project alternative is not a feasible alternative, as it is contrary to the congressional mandate to maintain a commercial navigation channel.

If one interprets the No Action alternative to mean No Change from the present course of action, continued utilization of the bankline for dredged material placement for the long-term would result. This situation has the potential to cause, by degrees, environmental degradation. Continued long-term placement along the historically used banklines, at this location and at the current dredging volumes and frequencies, could lead to unacceptable adverse natural resource impacts.

Extensive discussion and cooperation with State of Illinois natural resource representatives has yielded the current proposal. No other alternative has been given serious consideration.

HYPOTHESES

The District has developed two hypotheses for this project:

1. Material dredged from the Illinois Waterway, Beardstown Dredge Cut at RM 86.2 to 88.8 (medium to fine sand) is more suitable substrate for the non-breeding portion of the Illinois chorus frog life cycle than the resident substrates at Sites 1 and 5 (Medway loam).

2. With the construction of three breeding ponds near Sites 1 and 5, the overall population of Illinois chorus frogs in the area will increase, after considering some minor incidental take resulting from periodic placement of dredged material at Sites 1 and 5, and from occasional removal of the dredged sand from Sites 1and 5 for beneficial use purposes.

Substantiating these hypotheses will be based in part or in total on data designed to answer the following questions:

1. Are Illinois chorus frogs currently utilizing the portion of Site 1 covered with dredged material during the non-breeding season, and if so, to what degree?

2. Are Illinois chorus frogs currently utilizing the portion of Site 1 not impacted by dredged material during the non-breeding season, and if so, to what degree?

3. Are Illinois chorus frogs currently utilizing the sump area outside the berm of placement Site 1 during the breeding season, and if so, to what degree?

4. If Illinois chorus frogs are utilizing the sump area of Site 1 for breeding, are froglets transforming? (i.e., is there recruitment?). If so, are they migrating to Site 1 for the non-breeding portion of their life cycle, and if they are, are they migrating to the portion of Site 1 impacted by dredged material or the unimpacted portion?

5. To what degree, if any, are Illinois chorus frogs currently utilizing proposed Site 5 for the non-breeding portion of their life cycle (prior to any dredged material placement)?

6. To what degree, if any, are Illinois chorus frogs currently utilizing the area west of Site 5, where a breeding pond is proposed for construction in the future?

7. After dredged material placement at Site 5, are Illinois chorus frogs utilizing Site 5 more or less than prior to placement during the non-breeding portion of their life cycle?

8. After the construction of the breeding pond near Site 5, has Illinois chorus frog utilization increased or decreased compared to pre-construction usage?

9. If Illinois chorus frogs do utilize the constructed breeding pond near Site 5, are froglets transforming? (i.e., is there recruitment?). If so, are the newly transformed froglets migrating to Site 5 for the non-breeding portion of their life cycle?

10. If Illinois chorus frogs do utilize the constructed breeding ponds near Site 1, are froglets transforming? (i.e., is there recruitment?). If so, are the newly transformed froglets migrating to Site 5 for the non-breeding portion of their life cycle?

11. Are toe-clipped frogs returning to the same natal ponds?

12. What other organisms are utilizing Sites 1 and 5?

IMPLEMENTING AGREEMENT

Lonn I. McGuire, General Biologist, Rock Island District Corps of Engineers, Environmental Analysis Section, is the author of this CP and will be the primary author/compiler of the EA for Site 5. The EA for Site 5 is scheduled for release for public review in 2001.

Michael D. Cox, Dredging Coordinator, Rock Island District Corps of Engineers, will be responsible for the construction of the breeding ponds and the future placement of dredged material at Sites 1 and 5.

John K. Tucker, Great Rivers Field Station, Illinois Natural History Survey will be the Principal Investigator for the monitoring mentioned in this CP and will be responsible for writing/issuing an annual report to the District on 1 August of each project year.

Chris Phillips, Herpetologist with the Illinois Natural History Survey, will assist in the analysis of collected data.

Glen Kruse and Joe A. Kath, Program Manager and Project Manager, respectively, Office of Resource Conservation, Illinois Department of Natural Resources, will be responsible for critically reviewing this CP for adequacy. If adequate, they will be responsible for issuance of the Illinois Department of Natural Resources Incidental Take Authorization to the District.

George J. Sporer, Real Estate Acquisition, Rock Island District Corps of Engineers, will commence acquisition of Sites 1 and 5, along with river access, upon receipt of the Illinois Department of Natural Resources Incidental Take Permit to the District.

ENVIRONMENTAL COMPLIANCE

Environmental compliance in the form of a NEPA document was compiled in August 1995 for Site 1 with a FONSI (Finding of No Significant Impact) signing date of 20 November 1995.

This CP was compiled to conform/comply with State of Illinois Endangered Species laws.

An EA is being written for Site 5 with a tentative FONSI signing date of July 2001. Natural resource coordination by the Rock Island District with appropriate State and Federal natural resource agencies for this dredging project was initiated by letter dated 16 February 2000. A response to this letter was the catalyst for this CP.